# Lab: Unit Testing with JavaScript

Problems for exercises and homework for the ["Back-End Technologies Basics"](https://softuni.bg/trainings/4726/back-end-technologies-basics-september-2024) course @ SoftUni.  
You can check your solutions in [Judge](https://judge.softuni.org/Contests/4678/Unit-Testing-with-JS-Lab).

You are required to **submit only the** unit tests for the object **/** function you are testing.

## Sum of Numbers

Write tests to check the functionality of the following code:

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| --- |
| sumNumbers.js |
| function *sum*(arr) {  let sum = 0;  for (let num of arr){  sum += Number(num);  }  return sum; } |

Your tests will be supplied with a function named 'sum()'. It should meet the following requirements:

* Take an array of numbers as an argument
* Return the **sum** of the values of **all elements** inside the array

## Check for Symmetry

Write tests to check the functionality of the following code:

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| checkForSymmetry.js |
| function *isSymmetric*(arr) {  if (!Array.isArray(arr)){  return false; *// Non-arrays are non-symmetric*  }let reversed = arr.slice(0).reverse(); *// Clone and reverse* let equal = (JSON.stringify(arr) == JSON.stringify(reversed));  return equal;  } |

Your tests will be supplied with a function named 'isSymmetric()'. It should meet the following requirements:

* Take an array as an argument
* Return false for any input that isn't of the correct type
* Return true if the input array is **symmetric**
* Otherwise, return false

## RGB to Hex

Write tests to check the functionality of the following code:

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| --- |
| rgb-to-hex.js |
| function *rgbToHexColor*(red, green, blue) {  if (!Number.isInteger(red) || (red < 0) || (red > 255)){  return undefined; *// Red value is invalid*  }if (!Number.isInteger(green) || (green < 0) || (green > 255)){  return undefined; *// Green value is invalid*  }if (!Number.isInteger(blue) || (blue < 0) || (blue > 255)){  return undefined; *// Blue value is invalid*  }return "#" +  ("0" + red.toString(16).toUpperCase()).slice(-2) +  ("0" + green.toString(16).toUpperCase()).slice(-2) +  ("0" + blue.toString(16).toUpperCase()).slice(-2); } |

Your tests will be supplied with a function named 'rgbToHexColor()', which takes **three arguments**. It should meet the following requirements:

* Take three integer numbers, representing the red, green, and blue values of RGB color, each within the range [0…255]
* Return the same color in hexadecimal format as a string (e.g. **'#FF9EAA'**)
* Return undefined if **any** of the input parameters are of an invalid type or **not** in the **expected range**

## Add / Subtract

Write tests to check the functionality of the following code:

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| --- |
| addSubtract.js |
| function *createCalculator*() {  let value = 0;  return {  add: function(num) { value += Number(num); },  subtract: function(num) { value -= Number(num); },  get: function() { return value; }  } } |

Your tests will be supplied with a function named 'createCalculator()'. It should meet the following requirements:

* Return a module (object), containing the functions add(), subtract() and get() as properties
* Keep an **internal sum** that **can't be modified** from the outside
* The functions add() and subtract() take a parameter that can be **parsed as a number** (either a number or a string containing a number) that is added or subtracted from the **internal sum**
* The function get() returns the value of the **internal sum**